

Application Serial No. 10/533,704
Reply to Office Action of November 13, 2007

PATENT
Docket: CU-4189

Amendments to the Claims

The listing of claims presented below replaces all prior versions, and listings, of claims in the application.

Listing of claims:

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1.-45. (cancelled)

46. (currently amended) A method of fabricating a light collector being doped with dye molecules that, in use, absorb light having a wavelength within an absorption wavelength range and emit light having a wavelength within an emission wavelength range, the method comprising

calculating a concentration of the dye molecules taking into account the attenuation that emitted light will suffer owing to re-absorption or scattering in the main emission wavelength range and thereby taking into account that the fluorescence light output L_{out} is reduced for dye concentrations above an optimum value, and fabricating the light collector.

47. (previously presented) The method as claimed in claim 46 comprising the additional step of selecting the dimensions of the light collector and calculating the dye concentration for the selected dimensions.

48. (previously presented) The method as claimed in claim 46 wherein the step of calculating the dye concentration takes into account reflection properties of a medium that will be positioned adjacent to the light collector.

49. (previously presented) The method as claimed in claim 46 wherein the wavelength range in which attenuation is taken into account that extends beyond the main emission wavelength range.

50. (previously presented) The method as claimed in claim 46 wherein the wavelength range for which attenuation that is taken into account that extends to a wavelength of at least 50 nm longer than the wavelength that corresponds to maximum emission intensity.

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51. (previously presented) The method as claimed in claim 46 wherein the wavelength range in which attenuation is taken into account extends from 380 to 480 nm.
52. (previously presented) The method as claimed in claim 46 wherein the wavelength range in which attenuation is taken into account extends from 400 to 580 nm.
53. (previously presented) The method as claimed in claim 46 wherein the wavelength range in which attenuation is taken into account extends from 460 to 700 nm.
54. (previously presented) The method as claimed in claim 46 wherein the wavelength range in which attenuation is taken into account extends from 530 to 700 nm.
55. (previously presented) The method as claimed in claim 46 wherein the step of calculating the dye concentration is conducted such that a dye concentration for optimum combined absorption and emission efficiency is obtained.
56. (cancelled)
57. (new) The method of claim 46 comprising calculating the fluorescence light output L_{out} in equivalence lumens F_{CH} using

$$F_{CH} = \sigma \int_{\lambda_{min}}^{\lambda} dl \int_0^L \epsilon(\lambda, L) y(\lambda) d\lambda$$

where l is a length of the collector (total length L), and λ_{min} is a minimum wavelength, λ_{max} is a maximum wavelength, $\epsilon(\lambda, L)$ is the output power spectrum at a collection edge of the light collector and $y(\lambda)$ is the spectral sensitivity of the eye.